Health of King County 2006

Risk Factors for Chronic Disease and Injury

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5

Introduction

This chapter discusses some of the factors that are associated with increased risk for developing chronic diseases and suffering injury. The most important risk factors for chronic diseases include cigarette smoking, obesity, physical inactivity, high blood pressure, high blood cholesterol, and alcohol misuse. These factors are associated with the leading causes of death (such as heart disease, cancer, and stroke) and many other illnesses.

Results presented in this chapter on behavioral risk factors are based on the Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is a telephone survey of non-institutionalized adults age 18 and older. The 2004 Washington State Healthy Youth Survey provides supplemental information on behavioral risk factors among King County students in grades 6, 8, 10, and 12.

Behavioral Risk Factor Prevalence (%) Among Adults in King County, Washington State, and the United States

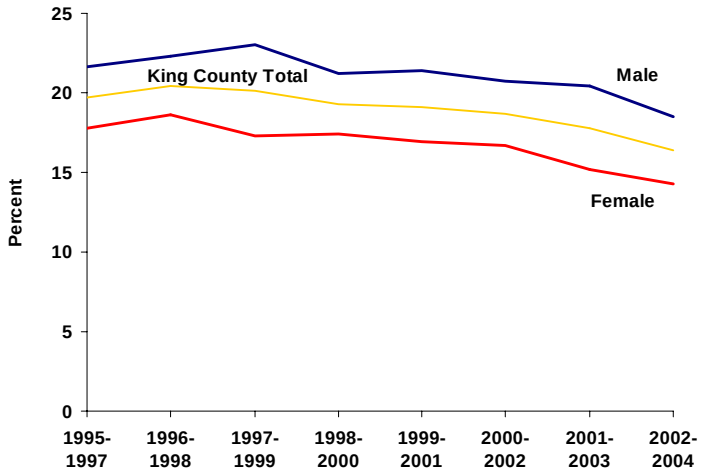
	King County	WA State	United States	HP 2010 Objective
Current smoking 2004	15.2	19.2	20.8	12.0
Obesity 2004*	17.7	21.7	22.2	15.0
No physical activity 2004**	14.5	17.2	22.8	20.0
High blood Pressure 2003	21.8	23.8	24.8	16.0
Cholesterol checked within 5 years 2003	73.5	72.7	72.8	80.0
Total blood cholesterol ≥240 mg/dL 2003	31.2	33.3	33.1	NA
Binge drinking 2004	15.7	14.2	14.9	6.0
Heavy alcohol drinking 2004	5.9	4.8	4.5	NA
Seatbelt Use 2002***	89.0	75.8	69.0	92.0
Unsafe Firearm Storage 2004 ****	13.4	NA	19.0	16.0

* The US rate is for 2002.
** King County and WA State have reached the U.S. Healthy People 2010 objective for this indicator.
*** The WA rate is for 1997 and the U.S. rate is for 1998.
**** King County has reached the U.S. Healthy People 2010 objective for this indicator. The U.S. rate is for 1998.

Smoking

- **Cigarette smoking is a major risk factor for a variety of diseases such as heart disease, lung cancer, and chronic lower respiratory disease.**
- **In King County, 30% of all deaths, 60% of all cancer deaths, 78% of the lung cancer deaths, 13% of the cardiovascular disease deaths, and 57% of the deaths from respiratory diseases were caused by cigarette smoking.[1]**
- **In 2004, 15.6% of King County adults were current smokers, higher than the Healthy People 2010 objective of 12.0%.**
- **The smoking prevalence among King County adults declined significantly between 1995 and 2004, from 19.7% during 1995-1997 to 16.5% during 2002-2004, and the decline was significant in both men and women.**

Current Smoker Among King County Adults by Gender Three-Year Rolling Averages, 1995-2004

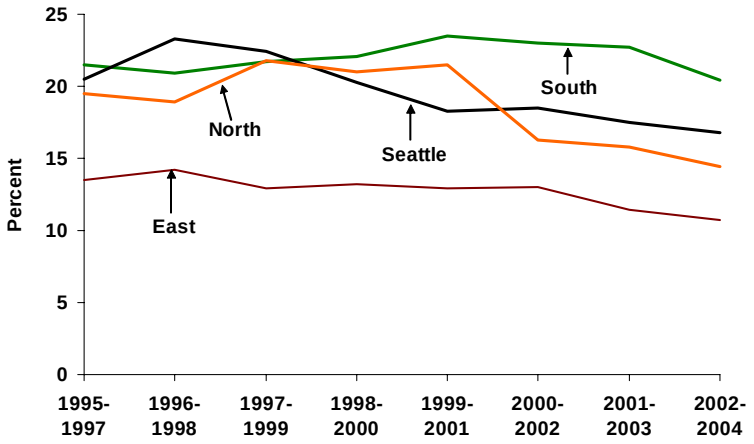


Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

King County and Regions

- Between 1995 and 2004, the only significant decline in the smoking rate occurred in Seattle.
- The East Region consistently had significantly lower rates than the other regions.
- The South Region had significantly higher rates than the other regions during the most recent years.
- See Public Health Core Indicators for Seattle & King County for more information.

Current Smoker Among King County Adults by Region, Three-Year Rolling Averages, 1995-2004

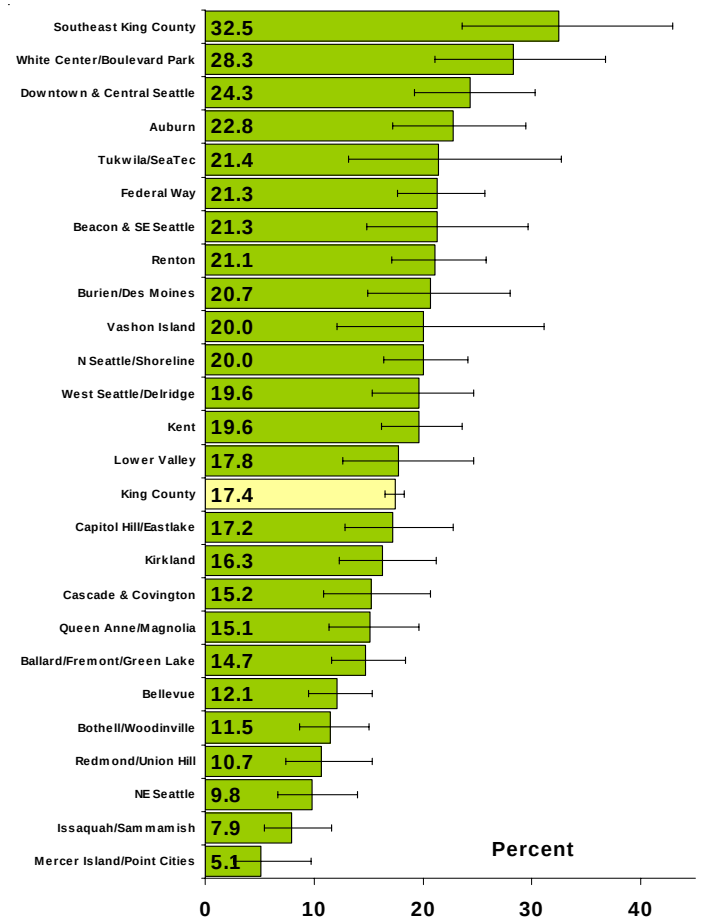


Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Patterns by Health Planning Area

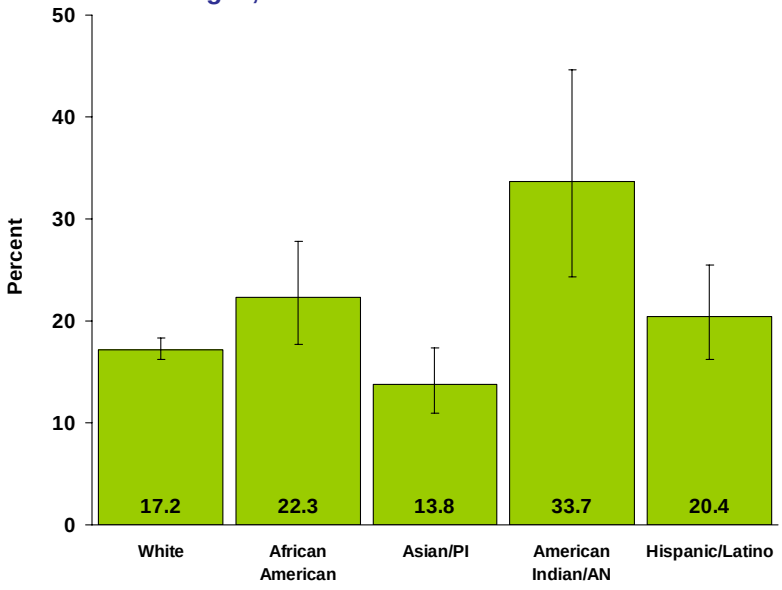
- Among the Health Planning Areas, the smoking prevalence rates in Southeast King County, White Center/Boulevard Park, and Downtown/Central Seattle were significantly higher than the King County average rate.
- The smoking prevalence rates in Mercer Island/Point Cities, Issaquah/ Sammamish, Northeast Seattle, Redmond/Union Hill, Bothell/Woodinville, and Bellevue were significantly lower than the county average.

Current Smoking Among King County Adults by Health Planning Area, 2000-2004 Averages



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Current Smoker Among King County Adults by Race/Ethnicity, Five-Year Averages, 2000-2004



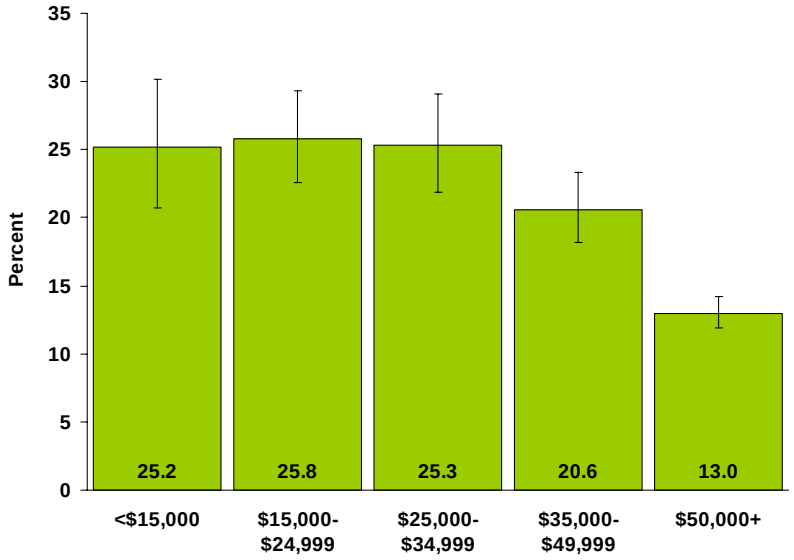
Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Focus on Disparitities

- American Indian/Alaska Natives had a significantly higher smoking rate than whites. African Americans also had a relatively higher rate.

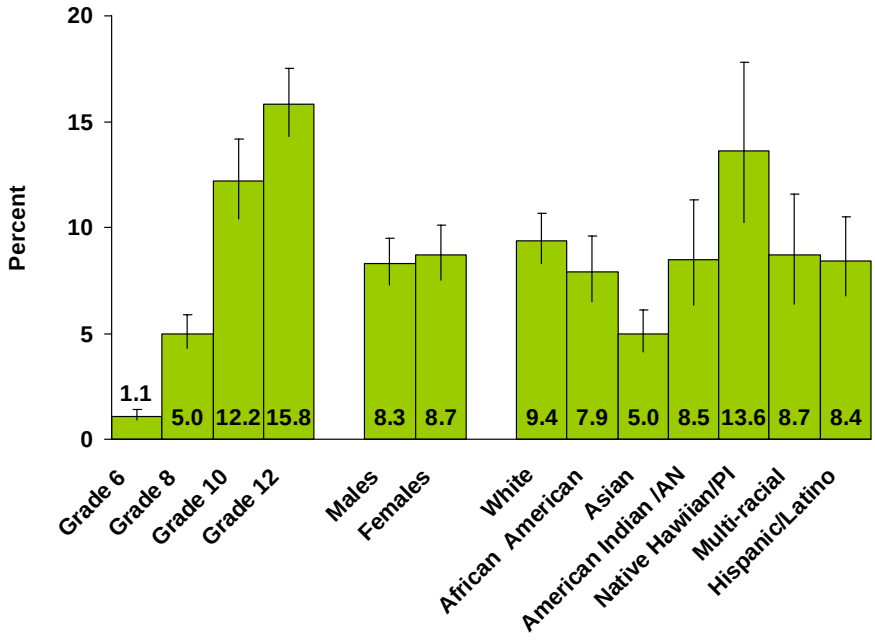
- Adults from higher income households had a significantly lower smoking rates.
- In 2003-2004, adults whose sexual orientation is gay/lesbian/bisexual had a significantly higher smoking rate (26.6%, 95% CI: 20.7%-33.4%) than heterosexual adults (15.0%, 95% CI: 13.9%-16.2%) (data not shown).

Current Smoker Among King County Adults by Annual Household Income, Five-Year Averages, 2000-2004



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Current Smoker Among Students in Grade 6, 8, 10, and 12 in King County, 2004



Data Source: Washington State Healthy Youth Survey.
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Smoking Among Youth

- The 2004 Washington State Healthy Youth Survey provides the most recent data on smoking among King County students in grades 6, 8, 10, and 12. In 2004, 5.0% of grade 8 students and 15.8% of grade 12 students in King County were current smokers (smoked every day or some days during the past 30 days).
- The current smoker prevalence was similar between male and female students.
- Native Hawaiian/Pacific Islander students had higher than average smoking rates while Asian students had lower than average rates.

References

[1] Estimated using SAMMEC (Smoking-Attributable Mortality, Morbidity, and Economic Costs), an online application developed by the CDC (http://apps.nccd.cdc.gov/sammec/intro.asp) using 2000-2004 King County smoking prevalence (current and former), and 2001-2003 King County mortality and life expectancy data.

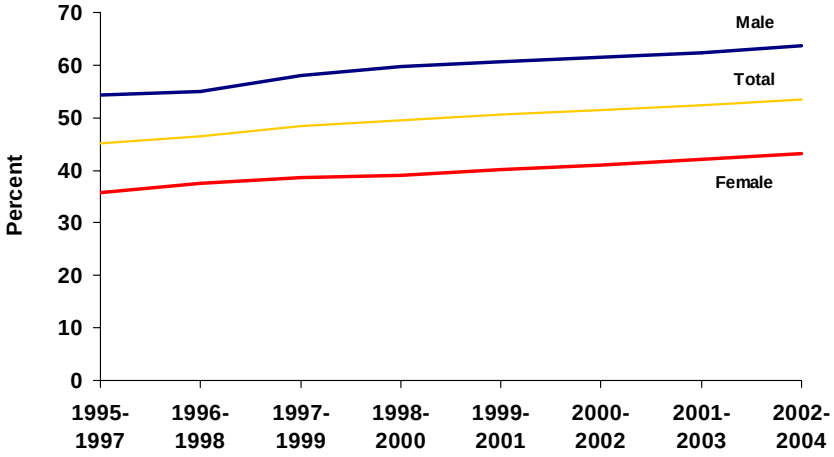
Overweight and Obesity

- **Obesity is the second leading cause of preventable death.**
- **Overweight and obesity increase the risk of coronary heart disease, stroke, hypertension, diabetes, gallbladder disease, osteoarthritis, sleep apnea, respiratory problems, and endometrial, breast, prostate, and colon cancers.**
- **In this report, overweight and obesity for adults are defined by Body Mass Index (BMI), a ratio of weight to height (weight in kg / (height in m^2). Overweight is defined as a BMI between 25.0 and 29.9 and obese as a BMI of 30 or above. "Overweight and obesity" refers to BMI $\geq$ 25.**
- **Similar to the national trend, the prevalence of overweight and obesity among King County adults continued to increase between 1995 and 2004 in both men and women.**
- **In 2004, 54.4% of the King County adults were either overweight (36.7%) or obese (17.7%).**
- **National data show that the prevalence of overweight has also been increasing among children.[1]**

King County and Regions

- Between 1995 and 2004, increasing trends were observed in all regions except the North Region, where the increasing trend was not statistically significant.
- The overweight and obesity rates have been consistently higher in the South Region and lower in Seattle.

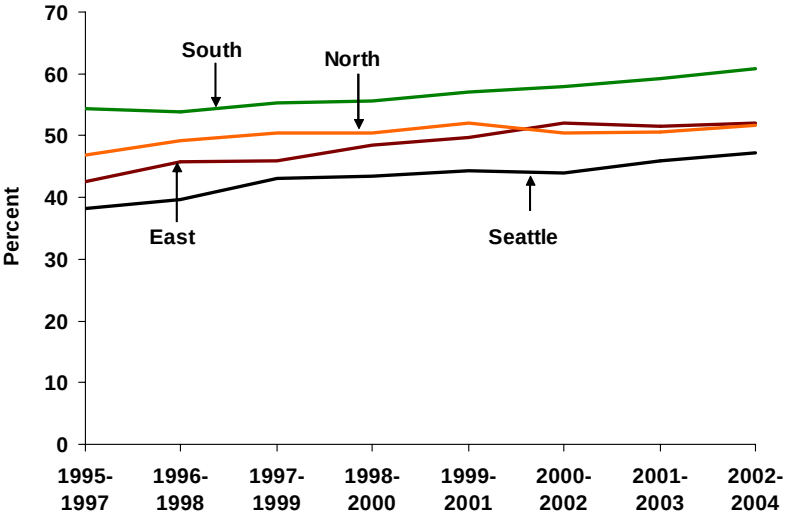
Overweight and Obesity Among King County Adults by Gender Three-Year Rolling Averages, 1995-2004



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

- See Public Health Core Indicators for Seattle & King County for more information about overweight and obesity.

Overweight and Obesity Among King County Adults by Region Three-Year Rolling Averages, 1995-2004

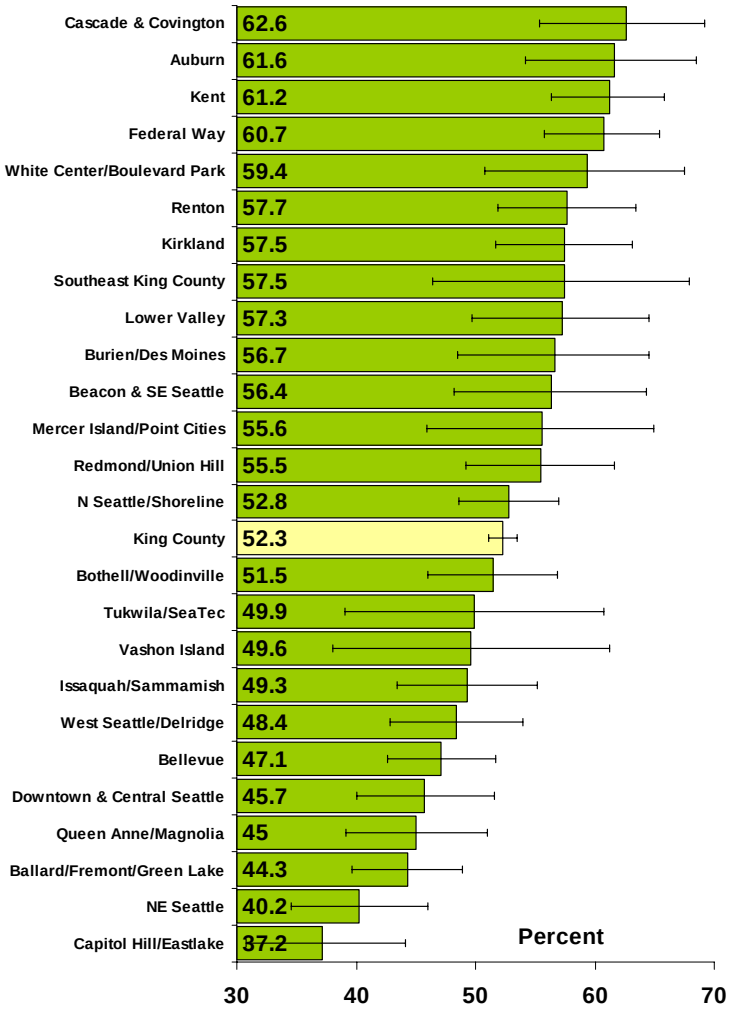


Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Patterns by Health Planning Area

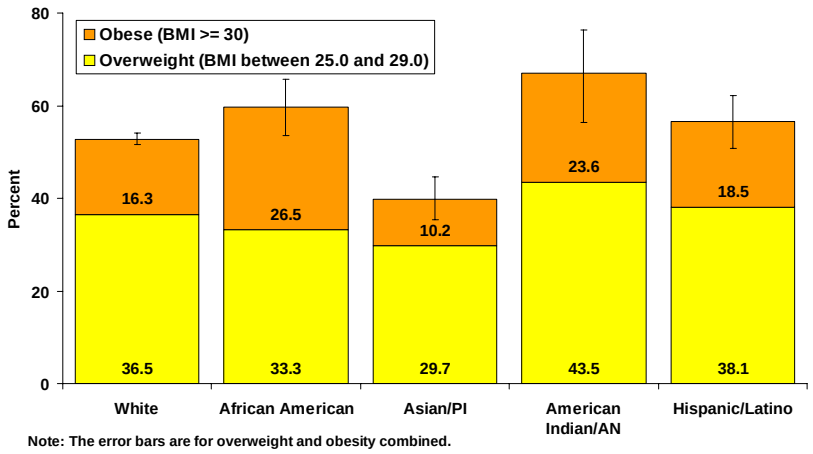
- The overweight and obesity rates in Cascade & Covington, Auburn, Kent, and Federal Way were significantly higher than the King County average.
- Capitol Hill/Eastlake, Northeast Seattle, Ballard/Fremont/Green Lake, and Queen Anne/Magnolia had significantly lower overweight and obesity rates.

Overweight and Obesity Among King County Adults by Health Planning Area, 2000-2004 Averages



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Overweight and Obesity among King County Adults by Race/Ethnicity, 2000-2004 Averages



Note: The error bars are for overweight and obesity combined.

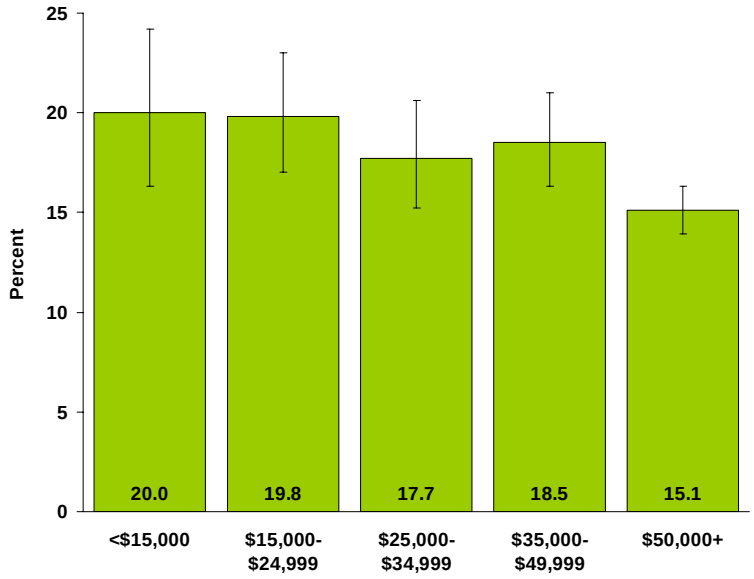
Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Focus on Disparities

- Averaged over 2000-2004, the prevalence of overweight and obesity among American Indian/ Alaska Native (67.1%) was significantly higher than the white rate (52.8%). African Americans also had higher overweight and obesity prevalence (59.8) and their obesity prevalence (26.5%) was significantly higher than whites (16.3%).

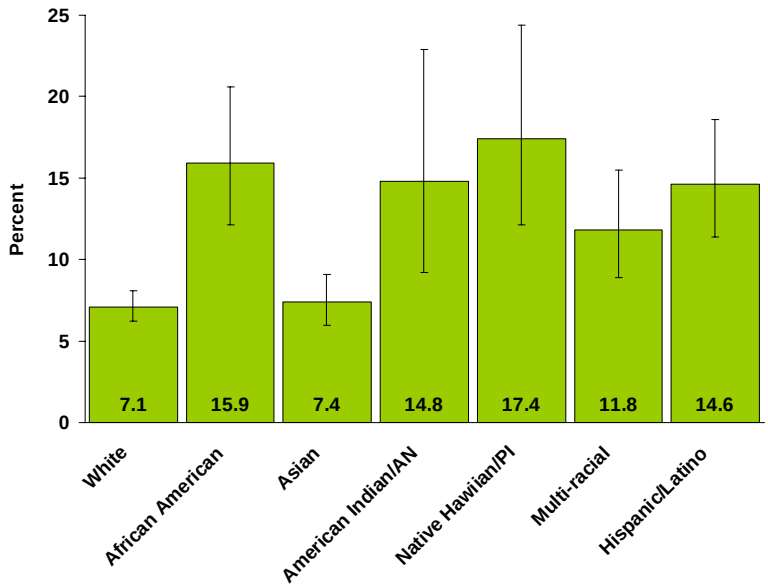
- The lower the household income, the higher the prevalence of obesity.

Obesity Among King County Adults by Household Annual Income, Five-Year Averages, 2000-2004



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Overweight Among King County Students in Grade 8, 10, and 12 by Race/Ethnicity 2004



Data Source: Washington State Healthy Youth Survey.
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Overweight Among Youth

- The 2004 HYS data show that 8.9% of the students in grades 8, 10, and 12 were overweight. An additional 12.3% of the students were at risk for overweight.[2]
- The prevalence rates of overweight among African American (15.9%), American Indian/Alaska Native (14.8%), Native Hawaiian/Pacific Islander (17.4%), and Hispanic/Latino (14.6%) students were significantly higher than white students (7.1%). The prevalence among Asian students was similar to whites.

References

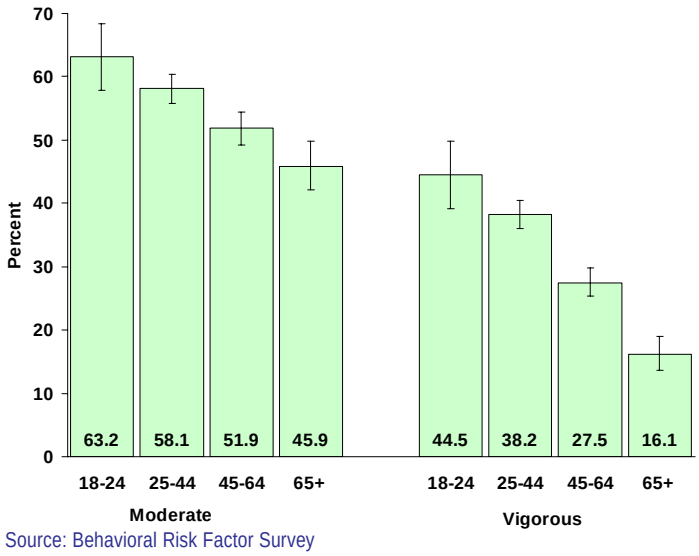
[1] CDC. Prevalence of Overweight Among Children and Adolescents: United States, 1999-2002. /www.cdc.gov/nchs/products/pubs/pubd/hestats/overwght99.htm

[2] For persons age 2-20, overweight is defined as BMI-for-age > 95th percentile based on the CDC gender-specific BMI-for-age reference. At risk for overweight is BMI > 85th percentile but < 95th percentile.

Physical Inactivity

- **Physical inactivity increases the risk of coronary heart disease, hypertension, obesity, diabetes, and many other health conditions.**
- **The CDC recommends that adults engage in either moderate-intensity physical activities for at least 30 minutes on 5 or more days per week or vigorous-intensity physical activity for 20 or more minutes per occasion on 3 or more days per week.[1]**
- **In 2004, 14.5% of the King County adults did not participate in any physical activity during the previous 30 days.**
- **In 2003, 44.3% did not meet the recommended physical activity level.**
- **The older the age, the less likely to meet the recommended physical activity levels.**

Meet Recommended Physical Activity Level Among King County Adults by Age, 2001 and 2003 Averages

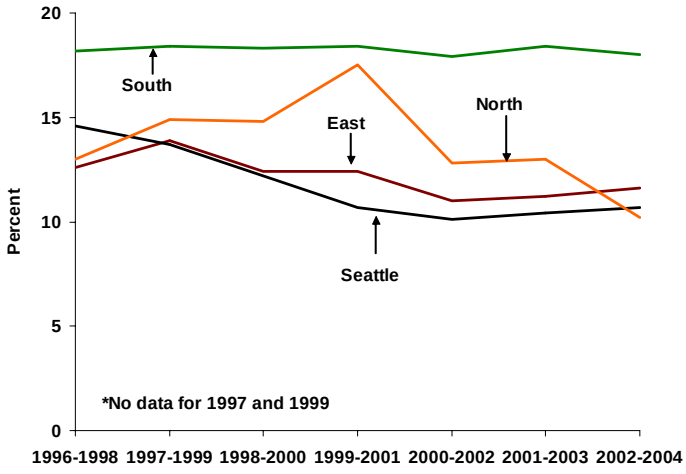


Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

King County and Regions

- Between 1996 and 2004, the prevalence of physical inactivity (did not participate in any leisure time physical activity during the previous 30 days) among King County adults declined slightly but significantly from 15.2% to 14.5% (data not shown).
- During the 10 year period, compared to the other regions, adults in the South Region consistently had higher rate of physical inactivity.
- See Public Health Core Indicators for Seattle & King County for more information.

No Physical Activity Among King County Adults by Region, Three-Year Rolling Averages, 1996-2004

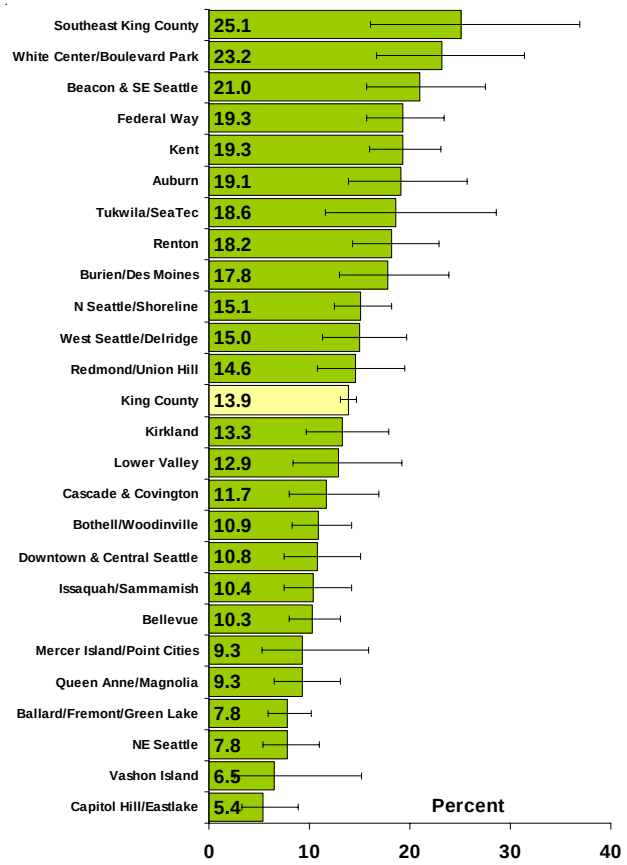


Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Patterns by Health Planning Area

- Adults living in Southeast King County, White Center/Boulevard Park, Beacon Hill & Southeast Seattle, Federal Way, and Kent were less likely to participate in physical activity than the King County average rate. Adults living in Capitol Hill/Eastlake, Northeast Seattle, Ballard/ Fremont/Green Lake were more likely to participate in physical activity.

No Physical Activity Among King County Adults by Health Planning Area, 2000-2004 Averages

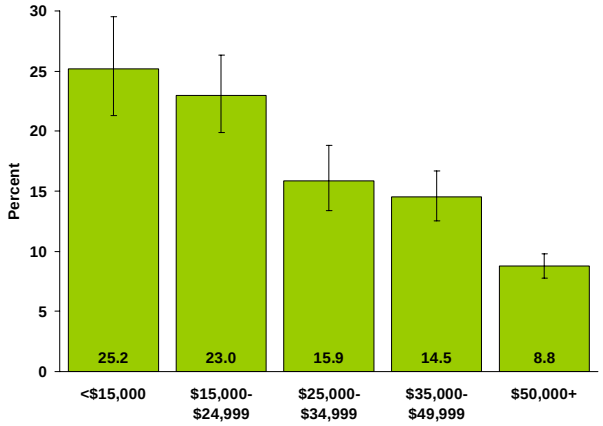


Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Focus on Disparities

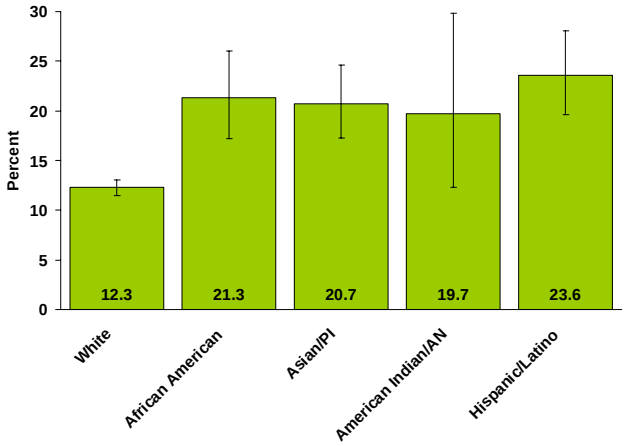
- Adults with lower household income were more likely to be physically inactive.
- The minority populations were significantly more likely to be physically inactive than whites.

No Physical Activity Among King County Adults by Annual Household Income, Five-Year Averages, 2000-2004



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

No Physical Activity Among King County Adults by Race/Ethnicity, Five-Year Averages, 2000-2004

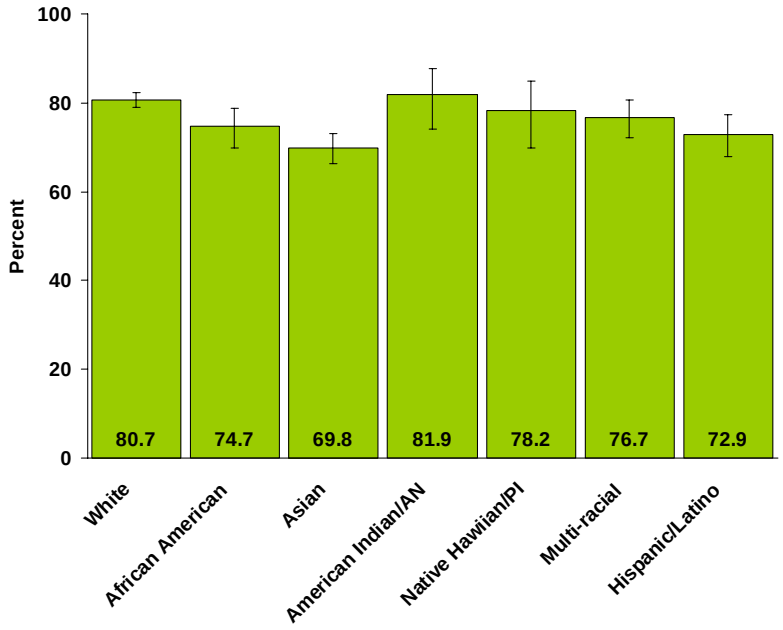


Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Physical Inactivity in Youth

- Among students in grades 8, 10, and 12, only 77.8% met the recommended physical levels in 2004.
- Asian, Hispanic/Latino and African American students were significantly less likely to meet the recommended physical activity level than whites.

Meet Physical Activity Recommendations Among King County Students in Grade 8, 10, and 12 by Race/Ethnicity 2004



Data Source: Washington State Healthy Youth Survey.
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

References

[1] /www.cdc.gov/nccdphp/dnpa/physical/recommendations/index.htm

Hypertension

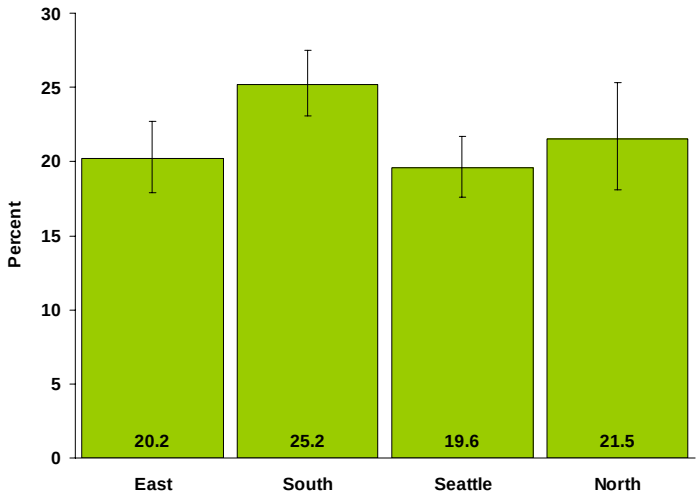
(High Blood Pressure: a blood pressure reading of 140/90 mmHg or higher)

- **Hypertension significantly increases the risk of coronary heart disease, stroke, and kidney failure.**
- **Factors such as obesity, physical inactivity, high salt diet, alcohol misuse, age, sex, heredity, and race affect the risk for hypertension.**
- **In 2003, 21.8% of King County adults had been told that they have high blood pressure. Among them, 65.7% were taking hypertension medication.**
- **The prevalence of hypertension increases with age and reaches 51.7% among older adults age 65 and over.**
- **It is recommended that adults with initial normal blood pressure measurements should be rechecked within two years.[1]**

King County and Regions

- The prevalence of hypertension among King County adults increased significantly between 1995 and 2003 from 18.4% to 21.8%.
- The hypertension prevalence increased significantly in the South Region between 1995 and 2003 from 15.6% to 25.3% (data not shown).
- In Seattle, the prevalence increased significantly between 1999 and 2003 from 14.8% to 21.7% (data not shown).
- The prevalence in the South Region was significantly higher than the county average.

Have Been Told to Have High Blood Pressure Among King County Adults by Region, 2001 and 2003 Averages

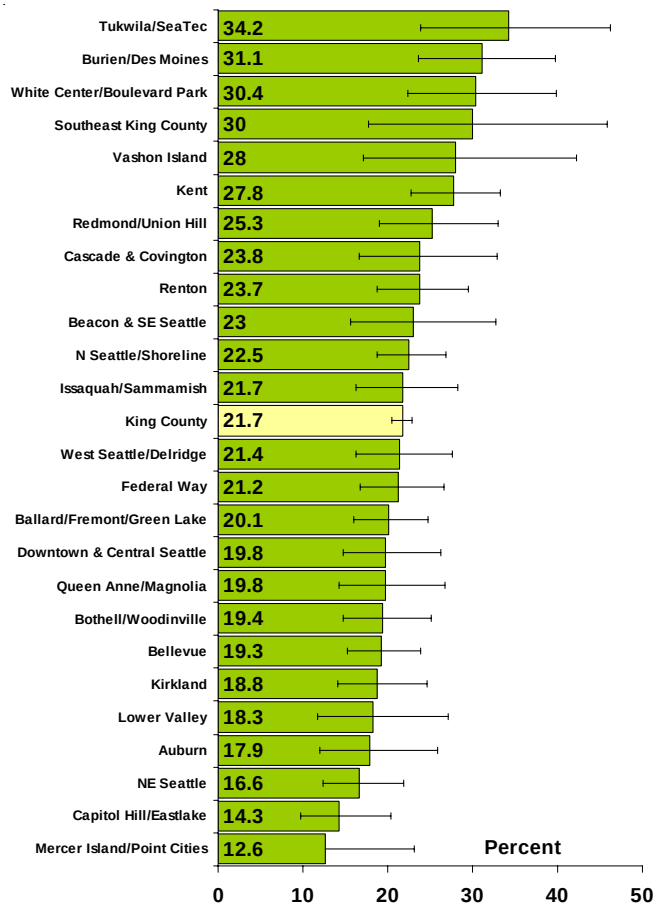


Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Patterns by Health Planning Area

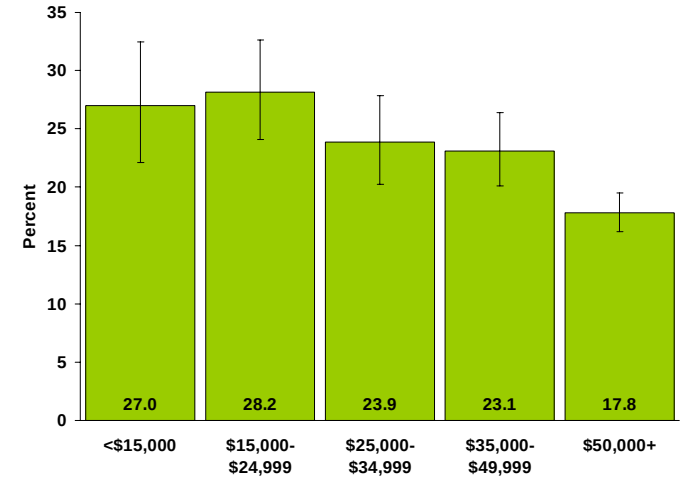
- The prevalence of hypertension among adults in Tukwila/SeaTac and Burien/Des Moines was significantly higher than the King County average.
- Mercer Island/Point Cities, Capitol Hill/Eastlake, and Northeast Seattle had the lowest prevalence rates.

High Blood Pressure Among King County Adults by Health Planning Area, 2001 and 2003 Averages



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

High Blood Pressure Among King County Adults by Annual Household Income, Three-Year Averages, 1999, 2001, and 2003



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Focus on Disparities

- Lower income adults had higher hypertension prevalence than adults in higher income levels.

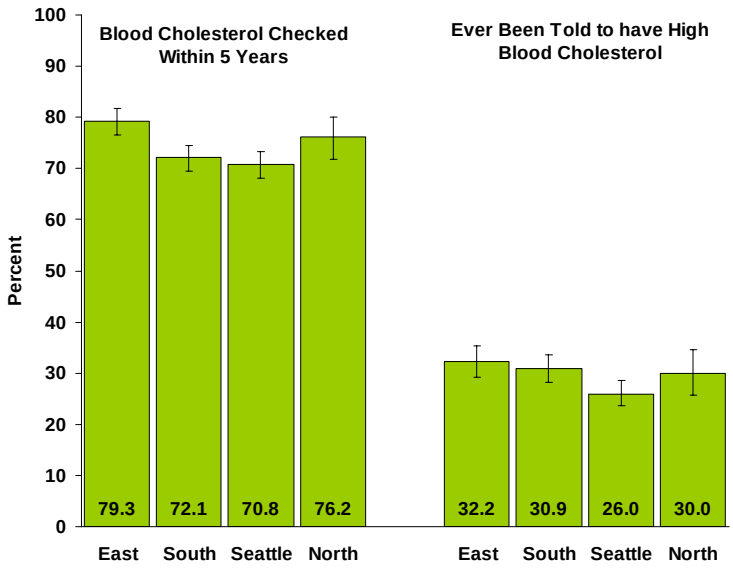
High Blood Cholesterol

- **Elevated blood cholesterol increases the risk of coronary heart disease and stroke. The most important behavioral risk factor for high blood cholesterol is excess consumption of dietary fat, especially saturated fat, as well as lack of physical activity.**
- **A blood cholesterol level of 200 to 239 mg/dl is considered borderline-high and a level of 240 mg/dl or higher is considered high.**
- **Routine screening of blood cholesterol at least every five years is recommended by the U.S. Preventive Services Task Force (USPSTF) for men aged 35 and older and for women aged 45 and older[1], while the National Cholesterol Education Program (NCEP) recommends that all adults age 20 and over have their cholesterol checked at least every 5 years[2].**
- **Averaged over 2001 and 2003, 73.6% of the King County adults had been checked for blood cholesterol during the past 5 years.**
- **Among adults who have been checked, 29.5% had been told to have high blood cholesterol, ranging from 12.9% for younger adults age 18-24 to 42.0% for older adults age 65 and over.**

King County and Regions

- Between 1995 and 2003 among King County adults, there was no change in the rate of having blood cholesterol checked within five years. Among those who have been checked for blood cholesterol, the rate of having been told to have high blood cholesterol increased slightly but significantly from 28.2% to 31.2% (data not shown)
- Adults in the East Region were significantly more likely to have blood cholesterol checked within 5 years than the South Region and Seattle and the rate increased significantly between 1995 and 2003. There were no significant changes in the screening rate among the other three regions. (data not shown)
- Among those who have been checked for blood cholesterol, the prevalence of high blood cholesterol among adults in the East Region was significantly higher than the rate in Seattle.

Blood Cholesterol Check and Level Among King County Adults by Region, Two-Year Averages, 2001 and 2003

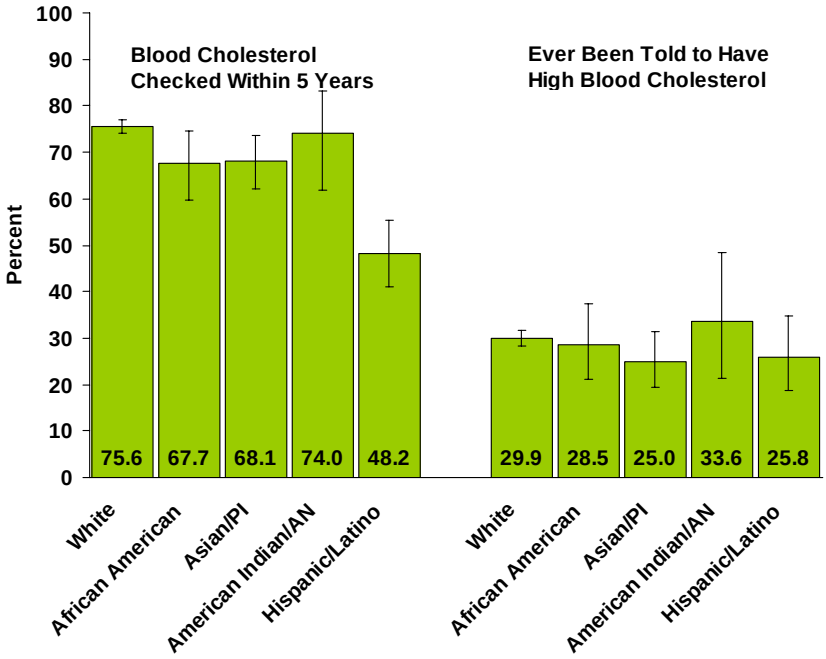


Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Focus on Disparity

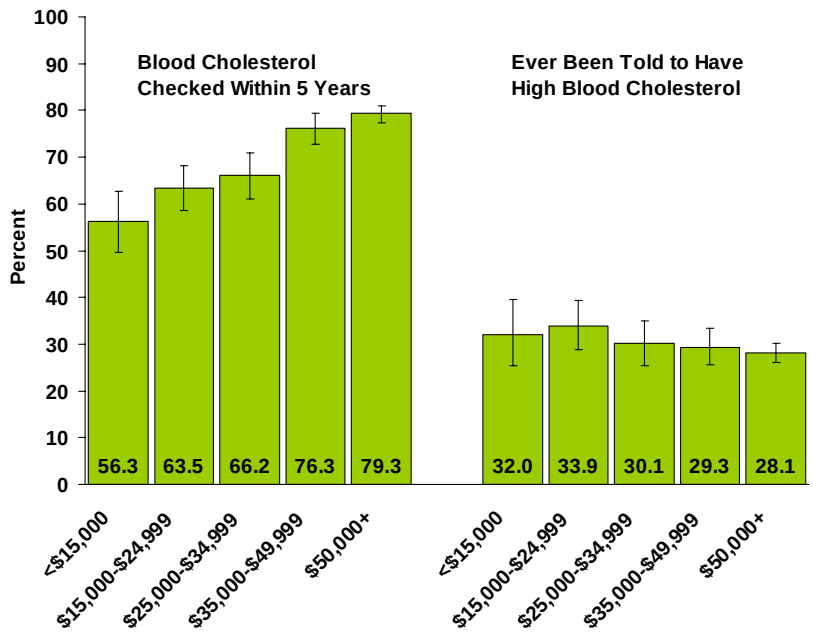
- Hispanics had significantly lower cholesterol screening rate than the other racial groups.
- African Americans and Asians/PI also had lower screening rates than whites.
- American Indian/AN had relatively higher prevalence of high blood cholesterol than the other racial/ethnic groups although the differences were not statistically significant because of small survey sample size.

Blood Cholesterol Check and Level Among King County Adults by Race/Ethnicity, Two-Year Averages, 2001 and 2003



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Checked Blood Cholesterol and Level Among King County Adults by Annual Household Income, Two-Year Averages, 2001 and 2003

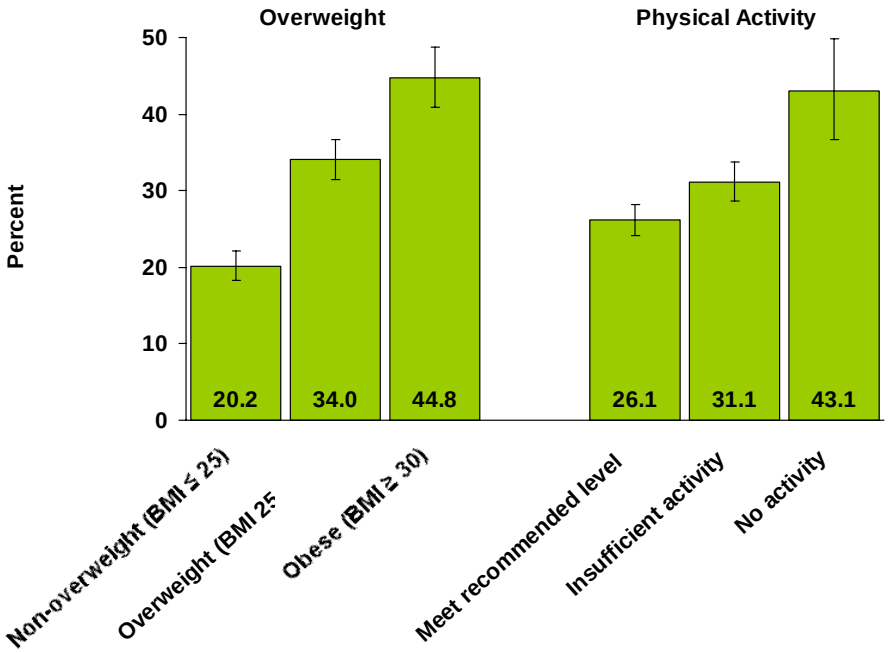


Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

- Adults with lower household incomes had lower cholesterol screening rates but somewhat higher prevalence rates of high blood cholesterol.

- High blood cholesterol prevalence is significantly associated with overweight status and physical activity level.

Prevalence of High Blood Cholesterol Among King County Adults Who Have Been Tested by Overweight Status and Physical Activity Level, Two-Year Averages, 2001 and 2003



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

References

[1] U.S. Preventive Services Task Force. Screening for Lipid Disorders in Adults. 2001 http://www.ahcpr.gov/clinic/uspstf/uspschol.htm

[2] Executive summary of the third report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, And Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). JAMA 2001;285:2486—97.

Alcohol Misuse

- **Alcohol misuse increases the risk of a variety of diseases and conditions such as heart disease, high blood pressure, motor vehicle crashes, chronic liver disease, sexually transmitted diseases, fall injuries, suicide, homicide, and domestic violence.**
- **Alcohol-related motor vehicle crashes are a leading cause of death among young adults and teenagers.**

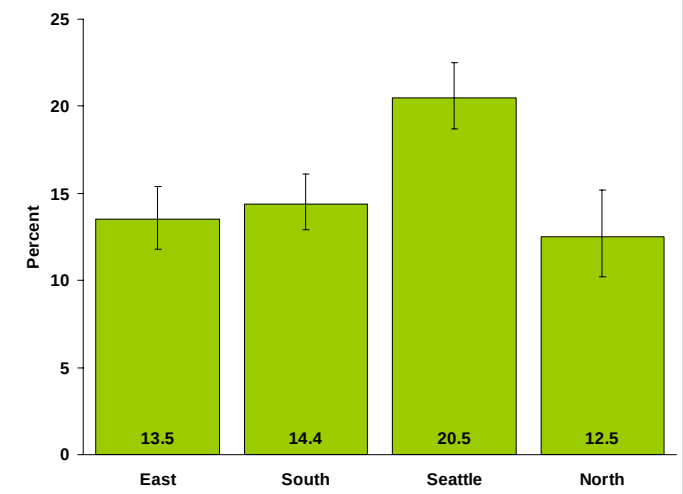
Alcohol Misuse Among Adults

- In 2004, 15.7% of King County adults reported binge drinking (consumed 5 or more drinks on one occasion) during the past month. Binge drinking prevalence was 31.6% among young adults age 18-24 (38.6% in males and 24.1% in females) (data not shown).
- 4.2% of King County adults admitted drinking and driving (after too much alcohol) during the past month and the prevalence was 12.2% among young adults age 18-24 (14.1% in males and 10.5% in females) (data not shown).
- 5.9% of King County adults were heavy drinkers (2 or more drinks per day for men and 1 or more drinks per day for women) and heavy drinking prevalence was 11.0% among young adults age 18-24 (9.1% in males and 12.8% in females) (data not shown).
- Between 1995 and 2004, there was no significant change in the prevalence of binge drinking, and drinking and driving among King County adults. However, the prevalence of heavy drinking increased significantly from 3.4% to 5.6% (data not shown).

King County and Regions

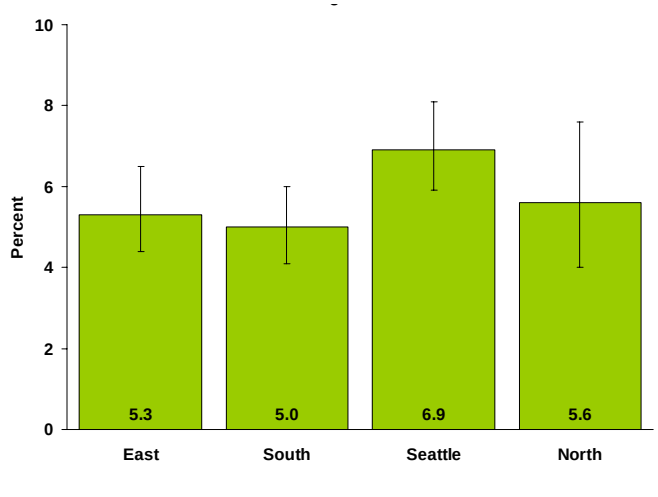
- Binge drinking prevalence increased significantly in the East Region between 1995 and 2004 from 9.6% to 16.3% (data not shown). However, Seattle had significantly higher binge drinking prevalence than the other regions.
- The prevalence rates of drinking and driving were higher in Seattle and the North Region but the differences among the regions were not statistically significant.

Binge Drinking Among King County Adults by Region, Four-Year Averages, 2001-2004



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

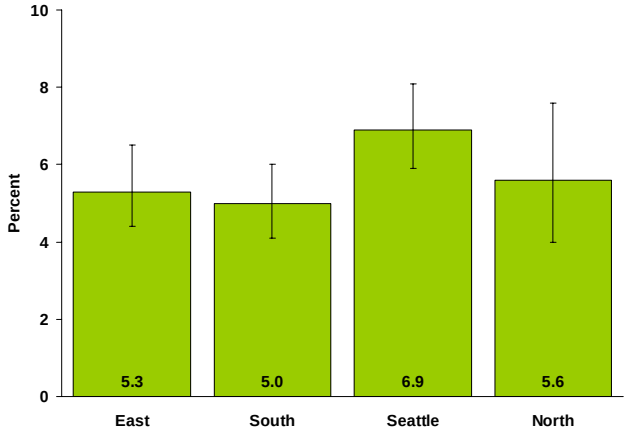
Drinking and Driving Among King County Adults by Region, Four-Year Averages, 2001-2004



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

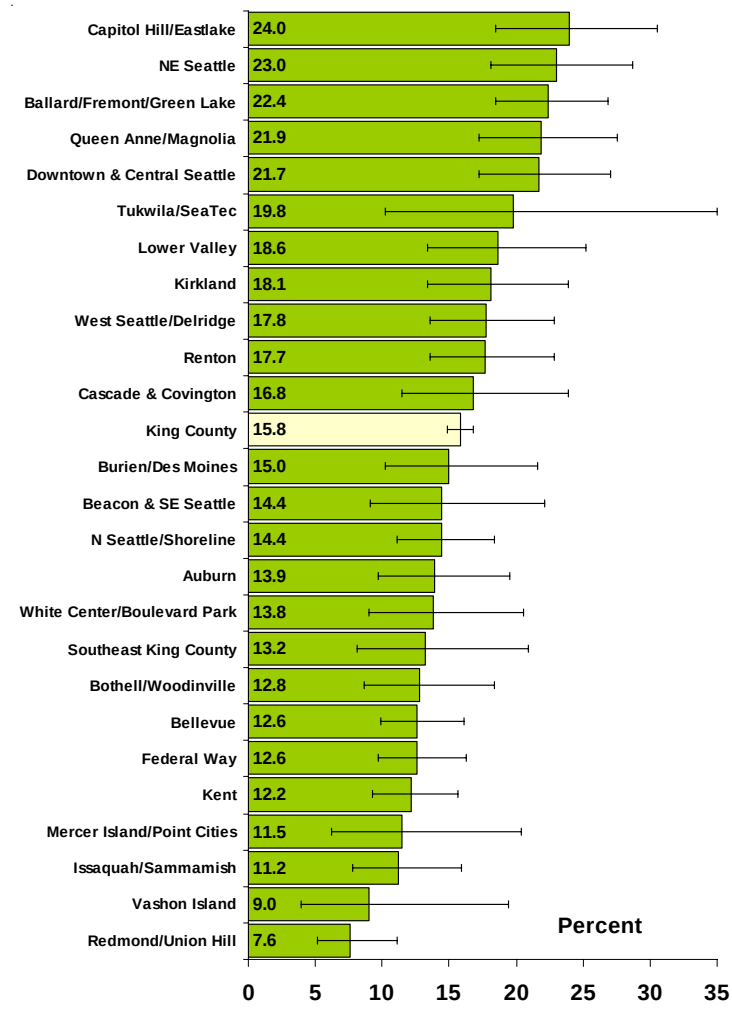
- The prevalence of heavy drinking increased significantly between 1995 and 2004 in Seattle (from 3.3% to 7.6%) and the North Region (from 2.2% to 3.7%) (data not shown). Seattle had the highest heavy drinking prevalence among the four regions but the differences were not statistically significant.

Heavy Drinking Among King County Adults by Region, Four-Year Averages, 2001-2004



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Binge Drinking Among King County Adults by Health Planning Area, 2000-2004 Averages



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Patterns by Health Planning Areas

- The prevalence of binge drinking in Capitol Hill/Eastlake, Northeast Seattle, Ballard/Fremont/Green Lake, Queen Anne/Magnolia, and Downtown/Central Seattle were significantly higher than the county average. Redmond/Union Hill had significantly lower than average prevalence.
- The prevalence rates of heavy drinking in Capitol Hill/Eastlake (10.4%) and Queen Anne/Magnolia (10.0%) were the highest among the health planning areas (data not shown).

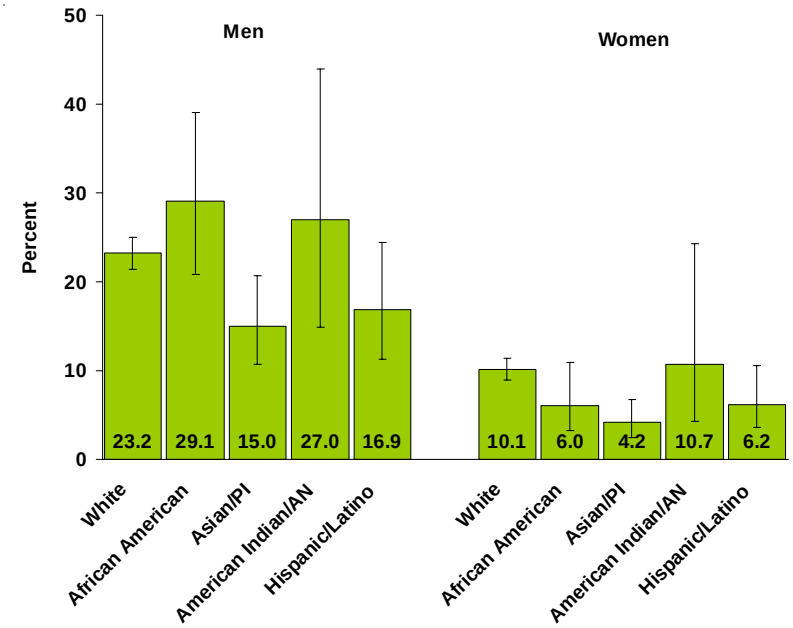
Focus on Disparities

- For men, binge drinking prevalence was higher among African Americans, American Indian/Alaska Natives, and whites, and lower among Asian/Pacific Islanders and Hispanic/Latinos. For women, whites and American Indian/Alaska Natives had relatively higher rates while Asian/Pacific Islanders, African Americans, and Hispanic/Latinos had relatively lower rates. Because of small sample size for the minority groups, most of the differences were not statically significant.
- The racial/ethnic differences on heavy drinking are similar to those observed on binge drinking. However, white women had significantly higher heavy drinking prevalence than white men (although by definition, the amount of drinking for women is half of that for men).
- By sexual orientation, those who are gay/lesbian/bisexual, or other had significantly higher binge drinking prevalence and heavy drinking prevalence than heterosexuals (26.0% vs. 15.4% on binge drinking and 10.9% vs. 5.5% on heavy drinking) (data not shown).

Alcohol Use in Youth

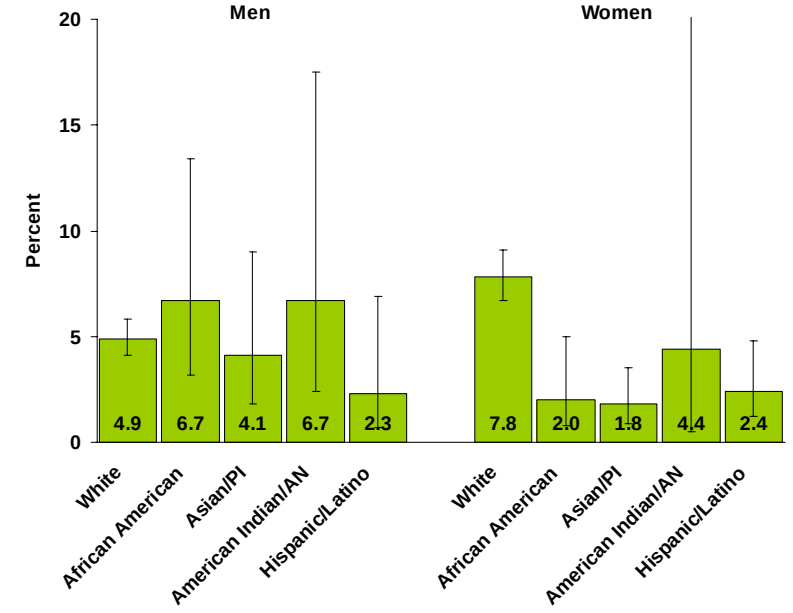
- Among King County students, the prevalence of recent alcohol use[1] was 3.8% in grades 6, 14.7% in grade 8, 31.5% in grade 10, and 42.0% in grade 12.
- The prevalence of binge drinking was 7.3% in grade 8, 15.4% in grade 10, and 22.5% in grade 12.
- The rates of recent alcohol use and binge drinking were similar between male and female students.

Binge Drinking Among King County Adults by Race/Ethnicity and Gender, Four-Year Averages, 2001-2004



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Heavy Drinking Among King County Adults by Race/Ethnicity and Gender, Four-Year Averages, 2001-2004



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

References

[1] Had a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor) during the past 30 days.

Seatbelt Use and Bicycle Helmet Use

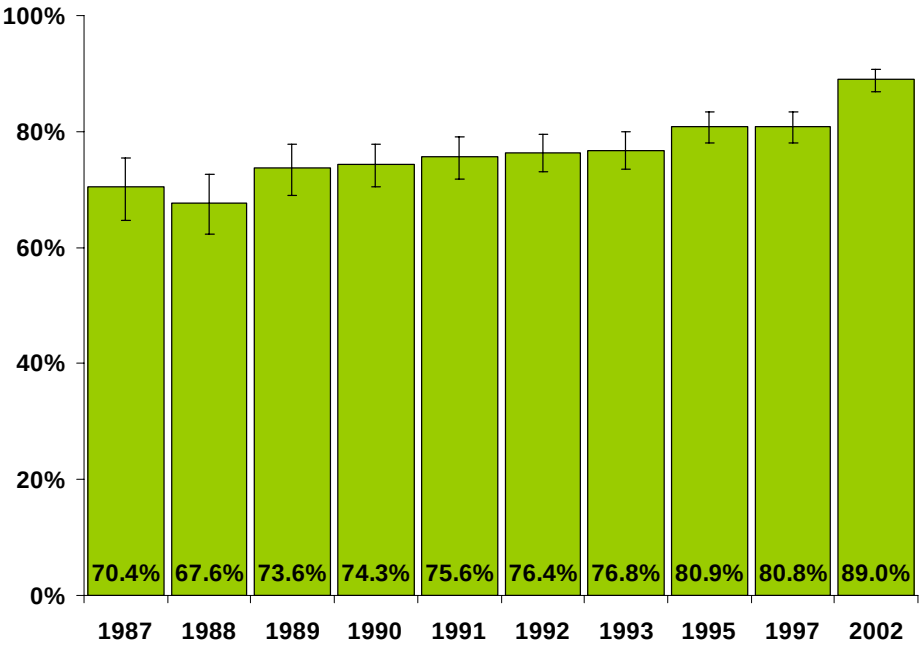
Motor vehicle crashes are a significant contributor to injury and death. Wearing a seatbelt when driving or riding in any type of motor vehicle drastically improves the chance of surviving a crash.
-- Wearing a lap/shoulder belt, while traveling in a passenger vehicle, can reduce the risk of dying up to 45% and up to 60% when riding in a "light truck" (this category includes SUVs).[1]
-- Unbelted passengers pose a risk to belted passengers by catapulting forward, backward, or sideways in a car crash – increasing the risk of death for the belted occupant up to 22%.[2]

In a crash, a bicycle helmet significantly reduces the bicyclist's risk of suffering a head injury.
-- Bicycle helmets, regardless of type, provide substantial protection against head injuries for cyclists of all ages involved in crashes, including crashes involving motor vehicles.[3]
-- Bicycle helmets have been shown to reduce the risk of head injury by as much as 85% and brain injury by as much as 88%.[4]

King County and Regions

- Data related to seatbelt use by King County adults come from the Behavioral Risk Factor Survey. Questions about seatbelt use are not asked every year. The most recent data are from the 2002 survey.
- In 2002, 89% of King County adults reported always wearing a seatbelt while driving or riding in a motor vehicle. An additional 6.6% reported almost always using a seatbelt. (data not shown)
- The proportion of those always using a seatbelt has significantly increased since 1987.

Percent of Adults Age 18+ Who Report Always Wearing a Seatbelt, King County, 1987 - 2002



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Percent of Adults Age 18+ Who Report Always Wearing a Seatbelt By Region, King County, 2002

	Percent	95% C.I.
East Region	93.8	(90.2-96.1)
South Region	87.6	(83.2-90.9)
Seattle	86.2	(81.8-89.7)
North Region	92.4	(86.0-96.0)
King County Total	88.9	(86.7-90.8)

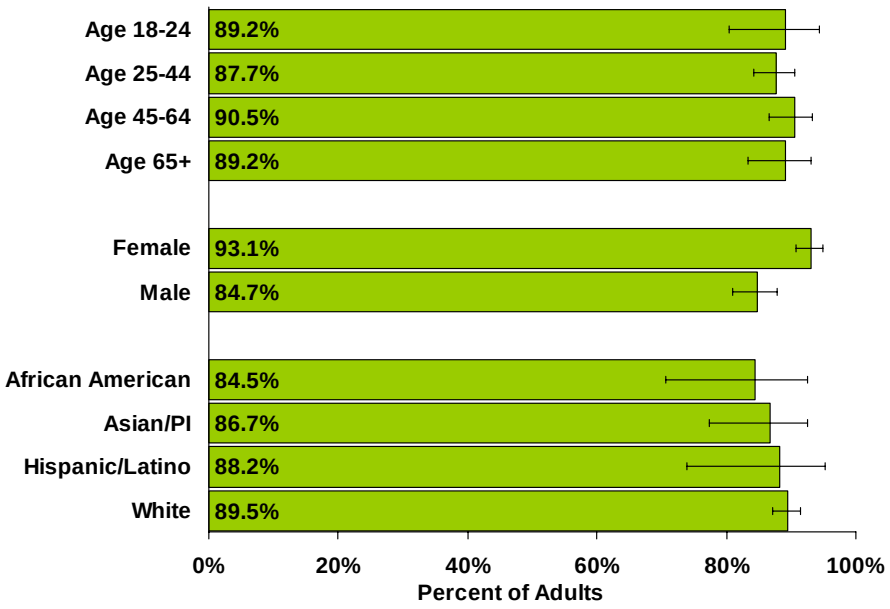
Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

- East Region residents are significantly more likely to use a seatbelt than Seattle residents. Other regional differences are not significant.
- The BRFSS does not collect data about use of bicycle helmets. Observational studies conducted by PHSKC in 2004 show bicycle helmet use at approximately 75%.

Focus on Disparities

- Females are more likely than males to use a seatbelt.
- There are no significant differences in seatbelt use among age groups, race/ethnic groups, or income groups (data not shown).
- Observational data on use of bicycle helmets show children and adults use helmets more frequently than teens. Children and adult usage was 83% and 84% respectively while teen usage was only 60%.

Percent of Adults Age 18+ Who Report Always Wearing a Seatbelt By Age, Gender and Race/Ethnicity, King County, 2002



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

References

1 National Highway Traffic Safety Administration (NHTSA), Traffic Safety Facts 2004 Data, Occupant Protection.

2 Cummings P, Rivara F. "Car Occupant Death According to the Restraint Use of Other Occupants: A Matched Cohort Study," The Journal of the American Medical Association, January 2004.

2 Thompson DC, Rivara FP, Thompson RS. Effectiveness of bicycle safety helmets in preventing head injuries. A case-control study. JAMA. 1996 Dec 25;276(24):1968-73.

3 Thompson RS, Rivara FP, Thompson DC. A case-control study of the effectiveness of bicycle safety helmets. N Engl J Med.1989 May 25;320(21):1361-7.

Access to Firearms

Firearms are a significant contributor to injury and death.

Firearms in the home are particularly risky:

-- Sixty-one percent of the firearms used in school associated-homicides or suicides came from the perpetrator's home or the home of a friend or relative of the perpetrator.[1]

-- In 72% of unintentional firearm-related deaths and injuries, suicides, and suicide attempts by 0-19 year-olds, the firearm was stored in the residence of the victim, a relative, or a friend.[2]

-- A review of King County firearm related deaths found that there were 43 suicides, homicides, or unintentional deaths involving a gun kept in the home for every one case of homicide for self-protection.[3]

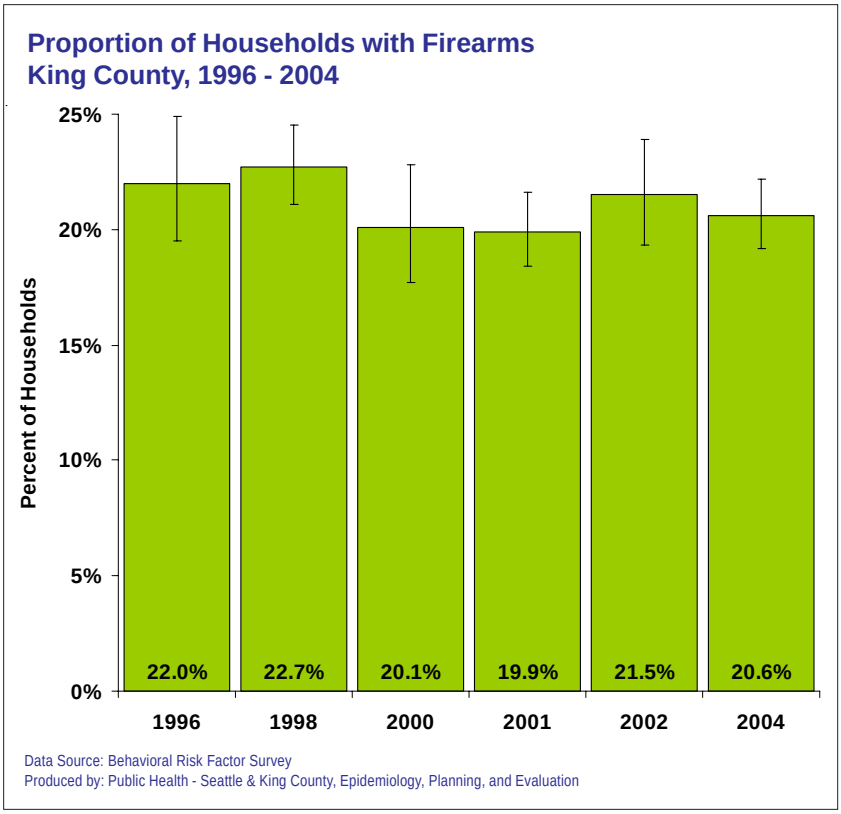
Safely storing firearms reduces these risks:

-- In a case – control study published in 2005, researchers found that "...storing household guns locked, unloaded, or separate from the ammunition is associated with significant reductions in the risk of unintentional and self-inflicted firearm injuries and deaths among adolescents and children." [4]

-- A 1997 study of state gun safe storage laws found a 23% reduction in unintentional shooting deaths among children younger than 15 years in the states covered by these laws.[5]

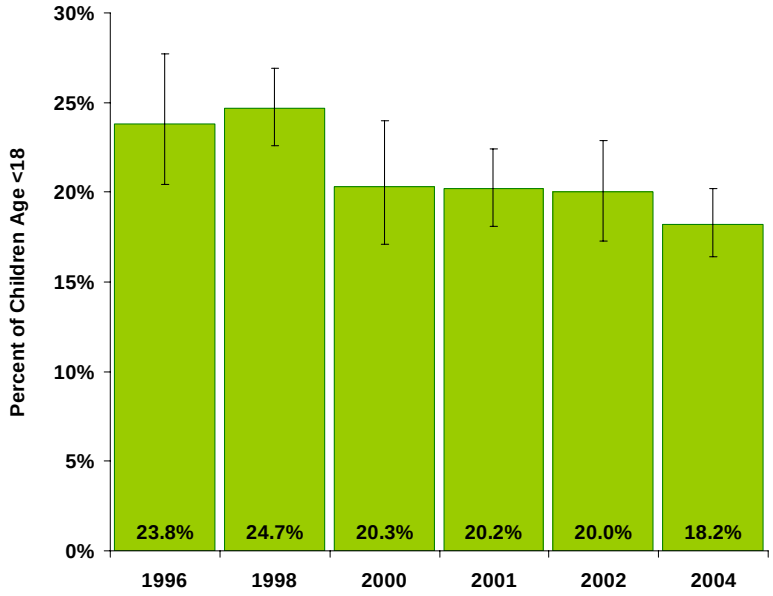
Trends and Patterns in Firearm Access

- Data related to firearms in King County households come from the Behavioral Risk Factor Survey. Questions about firearms are not asked every year.
- The proportion of households in King County where firearms are present has remained fairly constant. The proportion has varied a few percentage points from year to year but these changes have not been significant. It is estimated that firearms are present in or around one fifth (21%) of King County households.
- Firearms are stored safely, unloaded and locked, in the majority of households where they are present. However, approximately 13% of King County households with firearms store them unsafely - loaded and unlocked. This percentage is better than the Healthy People 2010 target of 16%. It is estimated that there are 19,000 households in King County with a loaded and unlocked firearm. (Data not shown).



- While the proportion of households with firearms remains constant, the number of children living in homes with firearms is significantly declining. In 2004, approximately 18% of King County's children lived in a home with one or more firearms.

Percent of Children Under Age 18 in Households with Firearms, King County, 1996 - 2004



Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

Estimated Percent and Number of Children Living in Homes Where Firearms are Loaded and Unlocked, King County

Year	Percent	95% Confidence Interval	Number
1996	2.0%	(1.1%, 3.6%)	8,000
1998	1.7%	(1.1%, 2.5%)	6,000
2000	0.4%	(0.1%, 1.2%)	1,000
2002	0.6%	(0.2%, 1.4%)	2,000
2004	1.0%	(0.6%, 1.7%)	4,000

Data Source: Behavioral Risk Factor Survey
Produced by: Public Health - Seattle & King County, Epidemiology, Planning, and Evaluation

- The proportion of children residing in homes where firearms are stored in an unsafe manner is also declining significantly. In 2004 only 1% of King County's children (approximately 4,000 children) lived in homes where firearms were kept both loaded and unlocked.
- In contrast to these positive trends, there is evidence that children have access to firearms. During the 2003 – 2004 school year, there were 14 firearm incidents reported in King County schools.[6]

References

1 MMWR Weekly, 3/7/2003

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3 Kellerman AL, Reay DT. Protection or peril? An analysis of firearm-related deaths in the home. N Engl J Med.1986; 314:1557–1560

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5 Cummings P, Grossman DC, Rivara FP, Koepsell TD. State gun safe storage laws and child mortality due to firearms. JAMA. 1997;278:1084-1086.

6 Washington Superintendent of Public Instruction, 2003-04 Annual Weapons Report.